

Applicant(s): Gurtej S. Sandhu

Serial No. Unknown (Parent Serial No. 09/652,634)

Filed: Herewith (Parent: August 31, 2000)

For: DETECTION DEVICES, METHODS AND SYSTEMS FOR GAS PHASE MATERIALS

Amendments to the Claims

This listing of claims replaces all prior versions, and listings, of claims in the above-identified application:

List of Claims

1-41. Cancelled

42. **(Original)** A sensor array for detecting a metallic compound in a gas phase material, the array comprising:

a substrate surface;

at least one line of receptor material attached to the substrate surface, wherein a metallic compound in a gas phase material preferentially deposits on the receptor material as compared to the substrate surface surrounding the receptor material; and

at least two electrodes attached to the substrate surface, wherein the at least two electrodes intersect the at least one line of receptor material in multiple locations such that a plurality of potential conductive paths are created between the at least two electrodes are created by the at least one line of receptor material.

43. **(Original)** A sensor array according to claim 42, wherein the receptor material is located between the substrate surface and the at least two electrodes where the at least one line of receptor material and the at least two electrodes intersect.

44. **(Original)** A sensor array according to claim 42, wherein the metallic compound in the gas phase material preferentially deposits on the receptor material as compared to the at least two electrodes.

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45. **(Original)** A sensor array for detecting a metallic compound in a gas phase material, the array comprising:

a substrate surface;

at least two lines of receptor material attached to the substrate surface, wherein a metallic compound in a gas phase material preferentially deposits on the receptor material as compared to the substrate surface surrounding the receptor material; and

at least two electrodes attached to the substrate surface, wherein the at least two electrodes intersect the at least two lines of receptor material in multiple locations such that a plurality of potential conductive paths are created between the at least two electrodes are created by the at least two lines of receptor material.

46. **(Original)** A sensor array according to claim 45, wherein the at least two lines of receptor material do not intersect each other.

47. **(Original)** A sensor array according to claim 45, wherein the receptor material is located between the substrate surface and the at least two electrodes where the at least two lines of receptor material and the at least two electrodes intersect.

48. **(Original)** A sensor array according to claim 45, wherein the metallic compound in the gas phase material preferentially deposits on the receptor material as compared to the at least two electrodes.

49. **(Original)** A method of detecting a metallic compound in a gas phase material, the method comprising:

providing a sensor array comprising:

a substrate surface;

at least one line of receptor material attached to the substrate surface, wherein a metallic compound in a gas phase material

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preferentially deposits on the receptor material as compared to the substrate surface surrounding the receptor material; and

at least two electrodes attached to the substrate surface, wherein the at least two electrodes intersect the at least one line of receptor material in multiple locations such that a plurality of potential conductive paths are created between the at least two electrodes are created by the at least one line of receptor material;

exposing the sensor array to the gas phase material that comprises the metallic compound; and

monitoring electrical conductivity between the at least two electrodes.

50. **(Original)** A method according to claim 49, further comprising activating an alarm when the electrical conductivity between the at least two electrodes reaches a predetermined limit.

51. **(Original)** A method according to claim 49, wherein the receptor material is located between the substrate surface and the at least two electrodes where the at least one line of receptor material and the at least two electrodes intersect.

52. **(Original)** A method according to claim 49, wherein the metallic compound in the gas phase material preferentially deposits on the receptor material as compared to the at least two electrodes.

53. **(Original)** A method of detecting a metallic compound in a gas phase material, the method comprising:

providing a sensor array comprising:

a substrate surface;

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at least two lines of receptor material attached to the substrate surface, wherein a metallic compound in a gas phase material preferentially deposits on the receptor material as compared to the substrate surface surrounding the receptor material; and

at least two electrodes attached to the substrate surface, wherein the at least two electrodes intersect the at least two lines of receptor material in multiple locations such that a plurality of potential conductive paths are created between the at least two electrodes are created by the at least two lines of receptor material;

exposing the sensor array to the gas phase material that comprises the metallic compound; and

monitoring electrical conductivity between the at least two electrodes.

54. **(Original)** A method according to claim 53, further comprising activating an alarm when the electrical conductivity between the at least two electrodes reaches a predetermined limit.

55. **(Original)** A method according to claim 53, wherein the at least two lines of receptor material do not intersect each other.

56. **(Original)** A method according to claim 53, wherein the receptor material is located between the substrate surface and the at least two electrodes where the at least one line of receptor material and the at least two electrodes intersect.

57. **(Original)** A method according to claim 53, wherein the metallic compound in the gas phase material preferentially deposits on the receptor material as compared to the at least two electrodes.

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58. **(Original)** A system for detecting a metallic compound in a gas phase material, the system comprising:

a sensor array comprising:

a substrate surface;

at least one line of receptor material attached to the substrate surface, wherein a metallic compound in a gas phase material preferentially deposits on the receptor material as compared to the substrate surface surrounding the receptor material; and

at least two electrodes attached to the substrate surface, wherein the at least two electrodes intersect the at least one line of receptor material in multiple locations such that a plurality of potential conductive paths are created between the at least two electrodes are created by the at least one line of receptor material; and

a detector in electrical communication with the at least two electrodes.

59. **(Original)** A system according to claim 58, wherein the receptor material is located between the substrate surface and the at least two electrodes where the at least one line of receptor material and the at least two electrodes intersect.

60. **(Original)** A system according to claim 58, wherein the metallic compound in the gas phase material preferentially deposits on the receptor material as compared to the at least two electrodes.

61. **(Original)** A system for detecting a metallic compound in a gas phase material, the system comprising:

a sensor array comprising:

a substrate surface;

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at least two lines of receptor material attached to the substrate surface, wherein a metallic compound in a gas phase material preferentially deposits on the receptor material as compared to the substrate surface surrounding the receptor material; and

at least two electrodes attached to the substrate surface, wherein the at least two electrodes intersect the at least two lines of receptor material in multiple locations such that a plurality of potential conductive paths are created between the at least two electrodes are created by the at least two lines of receptor material; and

a detector in electrical communication with the at least two electrodes.

62. **(Original)** A system according to claim 61, wherein the at least two lines of receptor material do not intersect each other.

63. **(Original)** A system according to claim 61, wherein the receptor material is located between the substrate surface and the at least two electrodes where the at least two lines of receptor material and the at least two electrodes intersect.

64. **(Original)** A system according to claim 61, wherein the metallic compound in the gas phase material preferentially deposits on the receptor material as compared to the at least two electrodes.

65. **(Original)** A sensor array for detecting a ruthenium compound in a gas phase material, the array comprising:

a substrate surface;

at least one line of receptor material attached to the substrate surface, wherein a ruthenium compound in a gas phase material preferentially deposits on the receptor material as compared to the substrate surface surrounding the receptor material; and

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at least two electrodes attached to the substrate surface, wherein the at least two electrodes intersect the at least one line of receptor material in multiple locations such that a plurality of potential conductive paths are created between the at least two electrodes are created by the at least one line of receptor material.

66. **(Original)** A sensor array according to claim 65, wherein the receptor material is located between the substrate surface and the at least two electrodes where the at least one line of receptor material and the at least two electrodes intersect.

67. **(Original)** A sensor array according to claim 65, wherein the ruthenium compound in the gas phase material preferentially deposits on the receptor material as compared to the at least two electrodes.

68. **(Original)** A sensor array for detecting a ruthenium compound in a gas phase material, the array comprising:

a substrate surface;

at least two lines of receptor material attached to the substrate surface, wherein a ruthenium compound in a gas phase material preferentially deposits on the receptor material as compared to the substrate surface surrounding the receptor material; and

at least two electrodes attached to the substrate surface, wherein the at least two electrodes intersect the at least two lines of receptor material in multiple locations such that a plurality of potential conductive paths are created between the at least two electrodes are created by the at least two lines of receptor material.

69. **(Original)** A sensor array according to claim 68, wherein the at least two lines of receptor material do not intersect each other.

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70. **(Original)** A sensor array according to claim 68, wherein the receptor material is located between the substrate surface and the at least two electrodes where the at least two lines of receptor material and the at least two electrodes intersect.

71. **(Original)** A sensor array according to claim 68, wherein the ruthenium compound in the gas phase material preferentially deposits on the receptor material as compared to the at least two electrodes.

72. **(Original)** A method of detecting a ruthenium compound in a gas phase material, the method comprising:

providing a sensor array comprising:

a substrate surface;

at least one line of receptor material attached to the substrate surface, wherein a ruthenium compound in a gas phase material preferentially deposits on the receptor material as compared to the substrate surface surrounding the receptor material; and

at least two electrodes attached to the substrate surface, wherein the at least two electrodes intersect the at least one line of receptor material in multiple locations such that a plurality of potential conductive paths are created between the at least two electrodes are created by the at least one line of receptor material;

exposing the sensor array to the gas phase material that comprises the ruthenium compound; and

monitoring electrical conductivity between the at least two electrodes.

73. **(Original)** A method according to claim 72, further comprising activating an alarm when the electrical conductivity between the at least two electrodes reaches a predetermined limit.

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74. **(Original)** method according to claim 72, wherein the receptor material is located between the substrate surface and the at least two electrodes where the at least one line of receptor material and the at least two electrodes intersect.

75. **(Original)** A method according to claim 72, wherein the ruthenium compound in the gas phase material preferentially deposits on the receptor material as compared to the at least two electrodes.

76. **(Original)** A method of detecting a ruthenium compound in a gas phase material, the method comprising:

providing a sensor array comprising:

a substrate surface;

at least two lines of receptor material attached to the substrate surface, wherein a ruthenium compound in a gas phase material preferentially deposits on the receptor material as compared to the substrate surface surrounding the receptor material; and

at least two electrodes attached to the substrate surface, wherein the at least two electrodes intersect the at least two lines of receptor material in multiple locations such that a plurality of potential conductive paths are created between the at least two electrodes are created by the at least two lines of receptor material;

exposing the sensor array to the gas phase material that comprises the ruthenium compound; and

monitoring electrical conductivity between the at least two electrodes.

77. **(Original)** A method according to claim 76, further comprising activating an alarm when the electrical conductivity between the at least two electrodes reaches a predetermined limit.

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78. **(Original)** A method according to claim 76, wherein the at least two lines of receptor material do not intersect each other.

79. **(Original)** A method according to claim 76, wherein the receptor material is located between the substrate surface and the at least two electrodes where the at least one line of receptor material and the at least two electrodes intersect.

80. **(Original)** A method according to claim 76, wherein the ruthenium compound in the gas phase material preferentially deposits on the receptor material as compared to the at least two electrodes.

81. **(Original)** A system for detecting a ruthenium compound in a gas phase material, the system comprising:

a sensor array comprising:

a substrate surface;

at least one line of receptor material attached to the substrate surface, wherein a ruthenium compound in a gas phase material preferentially deposits on the receptor material as compared to the substrate surface surrounding the receptor material; and

at least two electrodes attached to the substrate surface, wherein the at least two electrodes intersect the at least one line of receptor material in multiple locations such that a plurality of potential conductive paths are created between the at least two electrodes are created by the at least one line of receptor material; and

a detector in electrical communication with the at least two electrodes.

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82. **(Original)** A system according to claim 81, wherein the receptor material is located between the substrate surface and the at least two electrodes where the at least one line of receptor material and the at least two electrodes intersect.

83. **(Original)** A system according to claim 81, wherein the ruthenium compound in the gas phase material preferentially deposits on the receptor material as compared to the at least two electrodes.

84. **(Original)** A system for detecting a ruthenium compound in a gas phase material, the system comprising:

a sensor array comprising:

a substrate surface;

at least two lines of receptor material attached to the substrate surface, wherein a ruthenium compound in a gas phase material preferentially deposits on the receptor material as compared to the substrate surface surrounding the receptor material; and

at least two electrodes attached to the substrate surface, wherein the at least two electrodes intersect the at least two lines of receptor material in multiple locations such that a plurality of potential conductive paths are created between the at least two electrodes are created by the at least two lines of receptor material; and

a detector in electrical communication with the at least two electrodes.

85. **(Original)** A system according to claim 84, wherein the at least two lines of receptor material do not intersect each other.

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86. **(Original)** A system according to claim 84, wherein the receptor material is located between the substrate surface and the at least two electrodes where the at least two lines of receptor material and the at least two electrodes intersect.

87. **(Original)** A system according to claim 84, wherein the ruthenium compound in the gas phase material preferentially deposits on the receptor material as compared to the at least two electrodes.